

## **Insect repellents: How to protect your child from insect bites**

Mosquitoes, ticks and biting flies can carry disease. In Canada, flies do not carry disease and disease from other insects is very rare. If you are travelling to certain countries, your risk may be different since flies and mosquitoes can carry serious diseases such as malaria or dengue.

To help avoid insect and tick bites you can:

- Avoid sandals, wear light-coloured, long pants and long-sleeved shirts when outdoors, and tuck shirts into pants and pants into socks. This is especially important when mosquitoes are most active at dawn and dusk.
- Avoid places where mosquitoes breed and live, like standing water.
- Clean up any standing water in your yard.
- Keep screens in good repair.
- Cover playpens or strollers with a fine mesh netting when you are in an area with mosquitoes.
- Use insect repellents, especially when you are more likely to be exposed to insects or when you are travelling to countries where insects are more likely to carry disease.
- Remove and wash clothing, and shower after outdoor activities.
- Look for insects such as ticks on people and pets after outdoor activities.

### **Who ensures that insect repellents are safe?**

All active ingredients in insect repellents are reviewed by Health Canada's Pest Management Regulatory Agency before they can be sold in Canada. Products can include DEET, icaridin/picaridin, 10% oil of lemon eucalyptus (p-menthane 3,8 diol)

[PMD], 2% soybean oil and citronella oil.

# What is DEET?

DEET (*N,N*-diethyl-*meta*-toluamide) is a chemical found in insect repellents. DEET will protect you from biting flies, ticks and mosquitoes.

Not all products have the same concentration (amount) of DEET. The amount is listed as a percentage, such as 10% DEET. Insect repellents with a higher concentration of DEET provide a longer duration of protection. In Canada, products with a concentration of DEET above 30% are not available.

Like any chemical, insect repellents should be used safely.

**Your child should only be exposed to small amounts of DEET.**

Age	How much DEET can I use?	How long does it work after you put it on?
Under 6 months	<p><b>Do not use insect repellents with DEET. *</b> (see footnote at the end of the table for babies 2 to 6 months)</p> <ul style="list-style-type: none"><li>• Use a fine mesh net to cover your baby’s stroller or playpen when outside.</li><li>• When mesh is not available or when you are travelling to areas where flies and mosquitoes carry disease, dress your baby in clothes that cover their body and limbs.</li></ul>	
6 months up to 2 years	<ul style="list-style-type: none"><li>• No more than 10% DEET</li><li>• Up to once a day.</li></ul>	2.5–4.5 hours

2 to 12 years	<ul style="list-style-type: none"> <li>• No more than 10% DEET</li> <li>• Up to 3 times a day.</li> </ul>	2.5-4.5 hours
Over 12 years of age	<ul style="list-style-type: none"> <li>• Up to 30% DEET.</li> <li>• Follow the product label's instructions on how often to apply</li> </ul>	5-8 hours
Pregnant/breastfeeding mothers	Although there is no known hazard to unborn or breastfed infants, pregnant or nursing mothers may wish to consider DEET alternatives, such as using protective clothing and avoiding exposure to insects.	

**Source:** Insect repellents, Health Canada

**Note about babies 2 to 6 months old:** The American Academy of Pediatrics recently provided guidance on use of DEET in babies older than 2 months. In babies older than 2 months, consider using DEET (no more than 10%) sparingly, no more than once a day, especially when travelling to areas where insects are more likely to carry disease.

## Can I use DEET-free alternatives?

Yes. Icaridin/picaridin (hydroxyethyl isobutyl piperadine carboxylate) is a chemical repellent that prevents mosquito and tick bites. Repellents containing up to 20% icaridin/picaridin are safe.

## Can I use permethrin-treated clothing?

Permethrin is an insecticide found in some products used to control insects at home. Some outdoor and camping stores sell clothing that is pre-treated with permethrin. After a certain number of washes, the permethrin will be removed. Liquids or sprays that allow consumers to treat their own clothes or gear with permethrin are currently not approved for use in Canada.

In Canada, permethrin-treated clothing items have been approved for protection against mosquitos and ticks for people older than 16 years, including pregnant or breastfeeding women. While breastfeeding, don't wear permethrin-treated jackets or shirts since your baby will be too close to the clothing.

## Can I use ‘natural’ repellents?

Yes. However, they may not work as well as products that contain DEET and icaridin/picaridin, and in some cases not as much is known about their safety. Also, these products may not protect against tick bites. Remember, just because a product is labeled “natural” doesn’t necessarily mean it is safe. In some cases they may cause skin or eye irritations. Avoid repellent candles, since the fumes or vapours could cause breathing problems.

Active ingredient	At what age is it safe? How much can I use?	How long will it work against mosquitoes?	Will it protect against ticks?
Icaridin (Picaridin)	Children 6 months and older.	5 to 7 hours	Yes
P-menthane 3.8-diol (PMD or oil of eucalyptus )	Should not be used on children under 3 years of age. Can be applied up to twice a day.	Up to 2 hours against mosquitoes and up to 5 hours against black flies.	Unknown
Soybean oil	There are no age restrictions or limitations on frequency of use with these products.	Up to 3½ hours against mosquitoes and up to 8 hours against black flies.	Unknown
Citronella	Should not be used on children under 2 years of age.	Up to 2 hours against mosquitoes.	Unknown

# How can I use insect repellents safely?

- Read the entire label before using any insect repellent.
- Do not allow children under 10 years of age to put on their own insect repellent. Apply the product lightly and don't use more than you need.
- Always spray in an open, ventilated area. Do not apply in a tent or motorhome. Consider using stick-type applicators, lotions, or unpressurized sprays.
- Do not apply on irritated or sunburned skin or on open cuts or scrapes.
- Do not apply on your child's hands because they might rub it into their eyes or mouth.
- Be careful not to get it in your child's eyes. Spray it onto your hands first and then apply it to their face. If you do get the insect repellent in the eyes, rinse with water right away.
- Apply it only on top of clothing or to skin that is showing. Don't use it under clothes.
- Reapply after swimming.
- When you don't need the protection anymore, wash the repellent off with soap and water.

If you think your child is having a reaction to the product, wash the skin and get medical help right away. Take the container with you so the doctor knows what you used.

## Can I use insect repellent and a sunscreen at the same time?

Yes, but avoid products with a combination of insect repellent and sunscreen.

Sunscreen typically needs to be reapplied more often than repellent. If repellent and sunscreen are both required, the sunscreen should be applied first. Wait 20 minutes and then apply the insect repellent.

## Additional resources

- Insect repellents, Health Canada  
(<http://healthycanadians.gc.ca/product-safety-securite-produits/pest-control->

products-produits-antiparasitaires/pesticides/about-au-sujet/insect\_repellents-insectifuges-eng.php)

- Mosquito bite protection for travellers  
( <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/poster-mosquito-bite-prevention-travellers.html>)

## Reviewed by the following CPS committees

- Drug Therapy and Hazardous Substances Committee
- Infectious Diseases and Immunization Committee

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